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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,473	09/10/2003	Masao Ozeki	242619US0	2219

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
SCHECHTER, ANDREW M	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/658,473	OZEKI ET AL.	
	Examiner	Art Unit	
	Andrew Schechter	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 9-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 9-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 22 March 2006 has been entered.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Asakawa et al.,* U.S. Patent No. 5,892,598 in view of *Date et al.,* U.S. Patent No.

6,618,104, in view of *Nishiyama et al.,* U.S. Patent No. 6,507,385, in view of *Niiyama et al.,* WO 2000/23539, and further in view of *Okuda et al.,* U.S. Patent No. 6,144,424.

[The examiner notes that U.S. Patent No. 6,723,393 to *Niyama* belongs to the same patent family as *Niiyama '539*, so the examiner cites it as a rough translation of *Niiyama '539*.]

Asakawa discloses [see Figs. 8, 27, and 28, for instance] a composite display device comprising a first display member [whatever object is on the left in the figures], a second display member [52] disposed between the first display member and an observation point [the eye on the right] wherein the second display member comprises an electro-optical element [polymer dispersed liquid crystal device] which transmits light and scatters light.

Asakawa does not appear to explicitly state that light is transmitted under the application of no voltage and scattered under the application of a voltage [sometimes called "reverse mode", as opposed to the "normal mode" when a voltage causes transmission]. *Date* discloses an analogous polymer-dispersed liquid crystal device and teaches using the reverse mode [col. 14, line 24 – col. 15, line 20]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use this mode, motivated by the teaching of *Date* that this is preferable to improve viewing angle and obtain strong scattering properties.

The combined device of *Asakawa* in view of *Date* does not explicitly have the feature that the light transmittance under application of no voltage is at least 80%. [*Asakawa* itself gives multiple examples for which this is the case, col. 20, lines 48 and

56, for instance, but it is not necessarily true of the combined device.] It would have been obvious to one of ordinary skill in the art at the time of the invention to have the light transmittance under application of no voltage be at least 80%, motivated by the desire to clearly observe the first display member through a highly transparent second display member; higher transparency improves the quality of the display device. [An alternative way of stating this is that the transmittance of the display is a result-effective variable whose optimization (making it as large as possible subject to other constraints) would have been obvious to one of ordinary skill in the art at the time of the invention; see MPEP 2144.05. Making it within the range above 80% would therefore have been obvious to one of ordinary skill in the art at the time of the invention.]

Asakawa in view of *Date* discloses a PDLC composite device, with liquid crystal and cured product of a curable compound soluble to the liquid crystal, but does not explicitly disclose the detailed structure recited, such as transparent electrodes and adhesive spacers. *Nishiyama* discloses [see Fig. 1, for instance] an analogous PDLC device having a pair of substrates [1, 2] with transparent electrodes [5, 6], a composite layer [4] between them, the composite layer comprises a liquid crystal cured/resin composite containing liquid crystal and a cured product of a curable compound soluble to the liquid crystal, and adhesive spacers [3] arranged in the composite layer. It would have been obvious to one of ordinary skill in the art at the time of the invention to use such electrodes and spacers, motivated by the desire to apply an electric field while allowing light to pass through, and keep the substrates apart at the desired spacing.

Asakawa in view of *Date* in view of *Nishiyama* does not necessarily disclose the remaining limitation of claim 1, that the curable compound comprises a compound selected from the group of compounds in Formula (1) and Formula (2). *Niiyama* discloses the use of such a curable compound [see Fig. 1, whose compound is the same as that in the present application's Fig. 3(d)] in an analogous liquid crystal/cured resin composite. It would have been obvious to one of ordinary skill in the art at the time of the invention to use this compound, motivated by *Niiyama's* teaching that doing so enables the optical element to have high reliability and high contrast, produced easily and with a short curing time [see *Niyama '393*, col. 3, lines 33-50].

The above device does not necessarily disclose the amended limitation "wherein a portion of the electro-optical element, excluding a connecting portion to an external circuit formed in a peripheral portion of the electro-optical element, is transparent". Actually, it does meet this limitation since a "portion" in the center of the display is transparent. However, the examiner assumes that "a peripheral portion" was intended, rather than "a portion" [see applicant's arguments, p. 8], in which case the above device would not explicitly disclose that the periphery is (mostly) transparent.

Okuda discloses an analogous device in which "images or characters [are] displayed on a display in superimposed fashion on an outside view ahead" [col. 1, lines 10-12]. *Okuda* teaches that its device is an improvement over prior art devices which "generally lack the concept that the whole construction should be made transparent" [col. 2, lines 29-33, emphasis added]. *Okuda* discloses using a transparent resin layer in the periphery, so that "the entire display area except the pattern [meaning the image

in the display] always stays transparent" [col. 34, lines 25-35]. It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to have the peripheral portion, excluding a connecting portion to an external circuit formed in a peripheral portion of the electro-optical element, be transparent, motivated by *Okuda's* teaching that this is desirable (it allows unobstructed view of the outside view ahead).

Claim 1 is therefore unpatentable.

Asakawa discloses light sources [123] provided to illuminate the electro-optical element, and the light sources emit at least two light source colors [see Fig. 28], wherein the light sources emit the light source colors sequentially [col. 16, lines 25-26], the frequency of each colored light from the light sources is at least 40Hz [col. 16, line 35], and at least a portion of the display region of the electro-optical element is rendered to be a light scattering state in association with illumination by one or a plurality of light source colors to the electro-optical element to thereby provide a display color comprising one or a plurality of light source colors [col. 16, lines 31-44]. Claim 12 is therefore unpatentable as well. The light sources are able to emit a color of red, blue, or green independently [see Fig. 28], so claim 13 is also unpatentable. The display color comprises at least 8 colors [col. 16, lines 38-39; a time-sequential full color display of this kind using the three primary colors red, green, and blue can generally produce any desired color in the rainbow], so claim 14 is also unpatentable. A field sequential driving method wherein a change of light source colors of the light sources is associated with a display state of the electro-optical element is used, so claim 15 is also unpatentable.

Nishiyama discloses using adhesive spacers arranged in the composite layer which would have been obvious to one of ordinary skill in the art at the time of the invention to use, as discussed above, so claim 11 is also unpatentable.

5. Claims 3, 4, 9, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Asakawa, Date*, *Nishiyama*, *Niiyama*, and *Okuda* as applied above, and further in view of *Kobayashi et al.*, U.S. Patent No. 6,261,650.

Asakawa in view of *Date* does not disclose using the composite display device for at least displaying a speed of an automobile. *Kobayashi* does disclose using an analogous LCD device for displaying the speed of an automobile [see Figs. 15-17]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so with the device of *Asakawa* in view of *Date*, motivated by the desire to provide a more information in a convenient manner on an automobile dashboard [as taught by *Kobayashi*]. Claim 16 is therefore unpatentable.

The first display member in this case is a gauge [the speedometer, tachometer, fuel gauge, etc. shown in *Kobayashi*], and this gauge is a physical body, so claims 3 and 4 are also unpatentable. *Asakawa* in view of *Date* discloses an illumination means [as above], and the driving voltage in the car is supplied by a battery [either the car battery or a separate battery, there being no other way of supplying the voltage], so claim 9 is also unpatentable.

Kobayashi also discloses disposing an anti-reflection film on the surface of the electro-optical element [col. 20, lines 21-23]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so in the above device,

motivated by the desire to reduce reflections and improve the display quality. Claim 10 is therefore unpatentable as well.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Asakawa, Date*, *Nishiyama*, *Niiyama*, and *Okuda* as applied above, and further in view of *Hirai et al.,* U.S. Patent No. 5,103,327.

Asakawa in view of *Date* does not explicitly disclose the haze value in a light scattering state being at least 80%. *Hirai* does disclose an analogous PDLC device with high light transmission in the light transmitting state and haze greater than 80% in the scattering state [col. 6, lines 37-41]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such a haze value in the device of *Asakawa* in view of *Date*, motivated by the increased light scattered to the viewer's eye when the haze is high, which results in a more visible display. Claim 2 is therefore unpatentable.

7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Asakawa, Date*, *Nishiyama*, *Niiyama*, and *Okuda* as applied above, and further in view of *Sullivan,* U.S. Patent No. 6,100,862.

Asakawa in view of *Date* does not disclose a plurality of second display members. *Sullivan* discloses an analogous display device in which a plurality of second members [see Fig. 1] are arranged. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so in the above device, motivated by the desire to produce a 3D image. Claim 5 is therefore unpatentable.

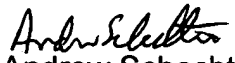
The plurality of second display members can display the same display pattern, with one on while the other is off [col. 3, lines 3-21], so claim 6 is also unpatentable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Andrew Schechter
Primary Examiner
Technology Center 2800
17 April 2006